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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,792	06/20/2001	Basanth Jagannathan	FIS920000402US1	4506

30743 7590 11/07/2003

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EXAMINER

LATTIN, CHRISTOPHER W

ART UNIT	PAPER NUMBER
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2812

DATE MAILED: 11/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/885,792	JAGANNATHAN ET AL.	
	Examiner	Art Unit	
	Christopher W Lattin	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/06/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 18 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification and Fig. 2e indicate that up to five layers can comprise the emitter stack oxide 56, nitride 57, polysilicon 63, emitter pedestal 66 and photoresist 65. Claim 18 limits the stack to an oxide, a nitride and a TEOS layer. The specification fails to teach how to form an emitter stack from only these layers.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "emitter stack" as used in the specification and claims is indefinite as it is unclear what layers applicant intends to be included in the stack. Claim 13 indicates that the emitter stack comprises T shaped polysilicon layer, nitride regions and an implant-masking cap. The specification and Fig. 2e indicates that five layers can comprise the emitter stack: oxide 56, nitride 57, polysilicon 63, emitter

pedestal 66 and photoresist 65. The emitter stack used for implanting only appears to require oxide layer 56, nitride layer 57, polysilicon layer 63 and nitride cap 64. Claim 18 requires that the emitter stack be limited to only an oxide, a nitride and a TEOS layer. This is not only inconsistent with the specification, but also with claim 13, which both indicate that the emitter stack includes polysilicon.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13-14, and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chantre et al. (U.S. Patent 6,177,717) in view of Jalali-Farahani et al. (U.S. Patent 5,620,907, previously cited).

Chantre et al. teach a transistor that has a collector region 60, a SiGe base 81, an emitter stack overlying the collector region, said emitter stack including an emitter opening filled with T-shaped polysilicon 111, said T-shaped polysilicon overlying nitride regions 10 included in said stack, SiGe extrinsic base regions (see Figure 6) arranged on respective sides of said emitter stack, the extrinsic base regions aligned with the polysilicon layer 111, but not directly with the emitter opening contacts, and contacts, but fails to teach that the extrinsic base regions are *directly* aligned with the polysilicon layer or an implanting mask cap on top of the T-shaped polysilicon and no spacers

around the emitter. Jalali-Farahani et al. teaches a similar bipolar device with extrinsic base regions directly aligned with the polysilicon emitter layer 110 and protective cap 285 in order to minimize the separation distance between the intrinsic region and extrinsic regions 290. See Jalali-Farahani et al. column 6 line 20 and Fig. 11. It would have been obvious to one skilled in the art at the time of the invention to align the extrinsic base regions directly to the emitter stack as taught by Jalali-Farahani et al. in the invention of Chantre et al. in order to minimize junction capacitance.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chantre et al. (U.S. Patent 6,177,717) in view of Jalali-Farahani et al. (U.S. Patent 5,620,907, previously cited) and applicant's admitted prior art.

Chantre et al. in view of Jalali-Farahani et al. are applied supra and teach all of the limitations of the device and Chantre et al. appear to illustrate a longer extrinsic base region and a shorter extrinsic base region. However, it is not clear if, in fact, one portion of the extrinsic base is elongated and a contact is formed on the longer extrinsic base region. The admitted prior art discussed in applicant's background section describes a well-known transistor that has a base contact formed on a longer extrinsic base region to form an electrical connection. See Figure 1j and page 4 lines 15-19 of the specification. It therefore would have been obvious to one skilled in the art at the time of the invention to have an electrical contact formed on the longer extrinsic base region.

Response to Amendment and Arguments

The declaration filed on 10/06/2003 under 37 CFR 1.131 is sufficient to overcome the Racanelli reference. Therefore, applicant's arguments filed 10/06/03 have been considered but are mooted by the new grounds of rejection based in part on the teachings of Jalali-Farahani et al.

The amendment filed 10/06/2003 is objected to under 35 U.S.C. §132 because it introduces new matter into the disclosure. 35 U.S.C. §132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material that is not supported by the original disclosure is as follows: the emitter stack comprising only an oxide, a nitride and TEOS layer. Applicant is required to cancel the new matter in the reply to this Office Action unless the portion of the specification providing the teaching is cited.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Lattin whose telephone number is (703) 305-3017. The examiner can normally be reached Monday through Friday from 8:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached at (703) 308-3325. The fax number for this Group is (703) 308-7722.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

CWL 
October 30, 2003

